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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,393

09/27/2006

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EXAMINER

WILLS, MONIQUE M

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

01/12/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,393	Applicant(s) YAMAKI ET AL.	
	Examiner Monique M. Wills	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Amendment filed September 29, 2008.

Claims 1 & 2 are cancelled. Claims 4 and new claim 5 are rejected under under 35

U.S.C. 102(b) as being anticipated by Kusumoto et al. U.S. Pub. 2004/0029007

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4 & 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kusumoto et al. U.S. Pub. 2004/0029007.

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With respect to **claim 4**, Kusumoto teaches a non-aqueous electrolyte battery comprising an oxide containing mainly iron and sodium. See paragraph 20. The limitations with respect to the electrode material having a hexagonal crystal structure, and exhibit a value of 2 or less obtained by dividing the XRD peak intensity corresponding to an interplanar spacing of 2.20 angstrom by the XRD peak intensity corresponding to an interplanar spacing of 5.36 angstrom, is considered an inherent property of the cathodic material set forth, as Kusumoto teaches the same electrode material as disclosed by Applicant. Support for this assertion is provided in MPEP 2112.01, “ [where] [p]roducts of identical chemical composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, since Kusumoto teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

With respect to **claim 5**, the cathode material is NaFeO_2 , embracing Applicant's instant formula $\text{NaFe}_{1-x}\text{M}_x\text{O}_2$ when $X=0$. See paragraph 20.

Therefore, the instant claims are anticipated by Kusumoto et al..

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4 & 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeda et al. Material s Research Bulletin, Vol. 29.

With respect to **claim 4**, Takeda teaches a non-aqueous electrolyte battery comprising an oxide containing mainly iron and sodium. See paragraph 20. The limitations with respect to the electrode material having a hexagonal crystal structure, and exhibit a value of 2 or less obtained by dividing the XRD peak intensity

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corresponding to an interplanar spacing of 2.20 angstrom by the XRD peak intensity

corresponding to an interplanar spacing of 5.36 angstrom, is considered an inherent

property of the cathodic material set forth, as Takeda teaches the same electrode

material as disclosed by Applicant. Support for this assertion is provided in MPEP

2112.01, “ [where] [p]roducts of identical chemical composition can not have mutually

exclusive properties.” A chemical composition and its properties are inseparable.

Therefore, since Takeda teaches the identical chemical structure, the properties

applicant discloses and/or claims are necessarily present. See *In re Spada*, 911 F.2d

705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

With respect to **claim 5**, the cathode material is NaFeO_2 , embracing Applicant's instant formula $\text{NaFe}_{1-x}\text{M}_x\text{O}_2$ when $X=0$. See paragraph 20.

Therefore, the instant claims are anticipated by Takeda et al..

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. Material s Research Bulletin, Vol. 29.

Takeda teaches a lithium battery comprising NaFeO₂, wherein an iron oxide and sodium oxide compound are heated at 600 to 700C.

Takeda does not expressly disclose heating the sodium-iron compound in an inert atmosphere in a temperature range lower than 100C in the course of rising temperature.

However, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to heat the sodium-iron compound of Takeda in an inert atmosphere in order to obviate reactivity with oxygen. The skilled artisan recognizes that oxygen and impurities in the air may react with the compounds.

With respect to the temperature range lower than 100C in the course of rising temperature, it would have been obvious to employ the instant temperature range, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ (CCPA 1980).

Applicant recognizes that the heating temperature directly effects surface characteristics of the active material and thus, cycle life, storage capacity and electrode utilization.

Response to Arguments

The Applicant contends that Kusumoto or Takeda fails to teach a sodium secondary battery. This argument is not persuasive, Kusmoto at claim 3 teaches that the battery is secondary, and the instant battery contains the same materials as the


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instant claims. Further, the secondary battery is only recited in the preamble and has been considered, but does not impart patentable weight because it is not necessary for completeness of the claim. Therefore, said references continue to anticipate the instant claims. With respect to claim 3, the arguments are persuasive and the rejections are newly applied as recited hereinabove.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

<div>Application Number</div> <div></div>	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/599,393	YAMAKI ET AL.	
	Examiner	Art Unit	
	Monique M. Wills	1795	